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B020413(020)

B. Tech. (Fourth Semester) Examination, April-May 2021

AICTE

(~~New~~ Scheme)

(Civil Engg. Branch)

SURVEYING and GEOMATICS

Time Allowed : Three hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : *Attempt all questions. Part (a) from each question is compulsory. Attempt any* ***two*** *parts from part (b), (c) and (d) of each question.*

Unit-I

1. (a) Define trilateration and triangulation. 4

(b) Write short notes on : 8

(i) Classification of triangulation system

(ii) Station marks and signals

(c) What is meant by a satellite station and reduction to centre? Derive expression for reducing the angles measured at the satellite station to centre. 8

(d) Describe the concept of base line measurement and its extension used in triangulation surveying. 8

Unit-II

2. (a) Explain clearly the difference between conditional and normal equations. 4

(b) Explain the laws of weights that are established by the method of least square. 8

(c) Explain the following terms : 8

(i) Residual errors

(ii) Correlates

(iii) Spherical excess

(d) Describe in detail the adjustment of a geodetic triangle by the method of correlates. 8

Unit-III

3. (a) What is Range finder? 4

(b) Derive the formula for horizontal distance and vertical distance in a tacheometric surveying with staff held vertical. 8

(c) Write short notes on : 8

(i) Total Station

(ii) Subtense bar

(d) State the procedure of determining the constant of tacheometer. 8

Unit-IV

4. (a) What are the major application areas of GIS? 4

(b) Derive the expression for scale of a tilt photograph and tilt distortion. 8

(c) Define vertical photograph, Oblique photograph, Tilt, principle point, Nadir point, Exposure station, Isocentre. 8

(d) A line AB 2000 m long, lying at an elevation of 500 m measures 8·65 cm on a vertical photograph for which focal length is 20 cm. Determine the scale of photograph in an area the average elevation of which is about 800 m. 8

Unit-V

5. (a) Name the various types of equipments required for taking sounding. 4

(b) Derive the three point problem in hydrographic survey by analytical solution. 8

(c) What do you mean by shore line survey? Explain in brief. 8

(d) What are uses of hydrographic surveying? Give some examples of its applications. 8